CHAPTER 6 : CONCLUSION AND RECOMMENDATION

According to the study of Chiang Mai water quality investigation, water quality of stream sites are relatively good especially during the rainy season which the dilution effect occurs. Quality of stream is ranging from medium clean to extra clean freshwater resources. The irrigation canal also has medium clean to very clean water quality. Quality of Ping river sampling sites are very clean fresh water resources while the water quality of Mae Kha canal is bad and not appropriate to use for any purpose.

From the study, it can be concluded that the application of SPSSWIN can be well applied to select parameters and their weighting factors which appropriate indicate water quality. These selected parameters are ammonia, biochemical oxygen demand, saturated oxygen, conductivity and total phosphate. Rating curves of such selected parameters were also developed using the existing SWQC and mathematical expressions. The developed WQI can also shows relatively high agreement in water quality classification comparing to the SWQC even only five parameters were concerned. It would suggests that the WQI can be used as an effective management tool for monitoring trends in water quality. In the comparative study, WQI using GW formulation showed the highest percentage of agreement compare to SWQC and suggested to be used in the real practical monitoring work. In addition to the water quality monitoring, key indicator was suggested to be included in which dissolved oxygen was selected due to its importance for living aquatic animals. But keep in mind that the five selected parameters are obtained from the Factor 1 which explain 55.7% of water quality. The author suggests that in order to improve the accuracy in percentage of variance explained of Factor 1 and make a more fit of factor matrix, rotation of data must be done several times. Another way which is possible to follow is the use of Factor 2 to get a higher cumulative percentage of variance explained.

A WQI can be used to pin-point various water in Chiang Mai areas which altered in quality more efficiently than the existing standard and classification. The

The monitoring of Chiang Mai running-water have shown that the water quality of streams, river, irrigation have increased during the rainy season. Thus, although further modifications to the WQI are required, it may well be concluded that the best management practices would be afforded by the combination use of WQI and SWQC.

According to the study of relationship between the physio-chemical variables and macroinvertebrates, the statistical techniques supported that it can be possible to predict the macroinvertebrate fauna community using physio-chemical data alone. It must be emphasized that in the comparison of sites classification based on macroinvertebrates and physico-chemical parameters, the same classification procedure should be considered to use.

In recommendation, this study is the beginning of WQI development in Thailand. It must also be emphasized that the developed WQI proposed in this work may not yet be able to apply for routine work. The further study is needed to modify and confirm the indexing system.